

PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.



NEWSLETTER

N-281

16-May-83

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Authorized by the Director of the Computer Centre

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1.0 MERGER OF NEWSLETTERS

The Mini-Micro Newsletter was first issued five years ago. Since then there has been rapid growth in the number of mini and microcomputers installed at the University of Queensland and Griffith University. Special data communications facilities have been provided to enable them to operate in a network environment with central computer systems. The stage has been reached where a single Prentice Computer Centre Newsletter covering central and remote facilities as well as the network is appropriate and cost effective.

On behalf of those who have enjoyed the information content, and sometimes humour, of the mini-micro newsletters, I would like to thank the past editors, Centre staff and users for their contributions over the past five years. I hope there will be "Gurus" to contribute to the combined newsletter. One that may be remembered:

"You can only examine 10 levels of subroutine nesting because that's all the fingers you have to stick in the listing".

Anonymous Programmer

Director
extension 2189

2.0 NEWSLETTER SUMMARY

By necessity, the newsletter often must contain precise and somewhat technical information that may obscure the relevance of the item to many of our readers. Commencing this issue, a brief summary of the newsletter will be included.

- . Approval has been given for the upgrade of central computing equipment to meet growth in usage (average of 30% p.a.) and to replace the 15 year old KA10 system. Following endorsement of the specification of requirements by the Computing Policy Committee, University of Queensland and the Computing Committee of Griffith University it was issued on 6 May. A summary of the specification has been issued to Heads of Departments and Divisions of both Universities.
- . Users with PDP11s running the operating system RSX will be interested in the procedure for transferring files between their PDP11 system and the central KL10 system, particularly as there is no charge for file transfer. The use of network passwords to provide security over file transfers is described. Software known as virtual terminal software allows a terminal connected to your PDP11 to also operate as a remote terminal on the KL10 system.

- . Those making use of the Tektronix plotting library (TCS) on the VAX system should note that it has a new address and will require a new specification for linking with your file. Some new additions to the TCS library will allow variable size and slope characters to be drawn.
- . The "GIGI" terminals provide good local editing facilities and can also run local Basic. The current 8K bytes of memory is somewhat restrictive. Following investigations by the Centre's staff, we can now increase this to 24 bytes at a cost of \$150.
- . Software House 1022 data base system has been used effectively in research and administrative applications over the past three years. A new version no. 115B is now available on the "NEW" directory for examination by users. The changes in the new version are summarised and a list of 1022 documentation is provided.
- . Those who use the NAG mathematical library should note the listing of known errors, particularly as in some situations, incorrect results are possible.
- . Information is provided on Prentice Computer Centre courses - Introduction to PDP10, Elementary courses in FORTRAN, BASIC and TECO editing, and more specialised courses in word processing (RUNOFF), Typsetting, Data Base (1022), Statistical Package SPSS, Plotting and Graphics.
- . Finally, there are notices of departmental equipment for sale.

Director
extension 2189

3.0 FILE TRANSFERS FOR RSX USERS - TO THE PDP10

RSX users can use the NFT command (for Network File Transfer) to access files on the KL-10. NFT is used much like PIP. By giving a node name before the filename, files can be copied to or from the KL-10.

Let's look at a typical operation.

You want to copy a file from the KL-10 to your RSX system. The general form of the command is -

```
>NFT RSX-filename=node/[ppn]/password::"filespec"
```

The parts are the RSX name to give the file, the remote node-name, followed by access control information for that node, a double colon to separate the node-specification from the file-specification, finally the file-specification (inside quotes). A typical example would be -

```
>NFT FREDDY.DAT=UQKL10/[123,456]/XYZZY::"FRED.DAT"
```

which means "transfer to FREDDY.DAT on this machine, a file from node UQKL10, use the PPN [123,456] and network password XYZZY, and the file is called FRED.DAT".

The password is NOT the same password which can be used to log-in to the KL-10. It's a special Network Access Password, used only for accesses from outside the KL-10. This means that you can let other people know what your network password is, so that they can access your files, WITHOUT allowing them to be able to log in to your KL-10 area. This network password is entered and changed using the KL-10 program NETMAN. (See below for more details).

Copying a file to the KL-10 is done by reversing the positions of the RSX-filespec and the remote-filespec. An example is -

```
>NFT UQKL10/[123,456]/XYZZY::"FRED.DAT"=FREDDY.DAT
```

which copies the RSX file FREDDY.DAT to the KL-10, and calls it FRED.DAT on PPN [123,456].

A file on a remote node (such as the KL-10) can be typed onto your RSX terminal by replacing the RSX-filespec with the device name "TI:". So, to type out the KL-10 file FRED.DAT, the command is -

```
>NFT TI:=UQKL10/[123,456]/XYZZY::"FRED.DAT"
```

and the file promptly appears. For more detail on NFT commands and remote file specifications, see the RSX-DECnet Guide to User Utilities.

Files may also be transferred using the FTS (File Transfer Spooler) command. See the RSX-DECnet Guide to User Utilities.

It isn't possible to provide all the file transfer facilities allowed by NFT. The NFT switches which can be used when accessing the KL-10 are -

```
/AP
/AS
/DF
/HE
/ID
/SU
```

Note that wildcards (the use of an asterisk for a filename) are not

allowed when accessing the KL-10.

There are a couple of restrictions on data transferred. Trailing blanks will be stripped from any file whose source is the KL-10. And any carriage control character (or group of characters) will be replaced by a carriage return.

The most common error messages will be displayed in readable text on your terminal, so that you get "No such file(s)" or "Privilege Violation". Some KL-10 errors don't have an equivalent RSX text message, so you will get a unfriendly-looking error code. The last three digits indicate the KL-10 ENTER error number. An invalid password is reported as "DAP error 11:130".

Typical faults are in the placing of spaces in a remote filename. Spaces are NOT allowed in the file specification. When using a PPN in the file specification, both project and programmer numbers need to be explicitly supplied. Don't leave a field blank - i.e. constructs such as [,] or [,123] won't work.

It will probably make you happy to know that file transfers done this way will cost you absolutely nothing. In fact, they won't cost anything to send to any node in the network - with the exception of UQVAX::.

Any complaints, etc. can be directed to

Mark Williams
extension 2962

4.0 NETWORK PASSWORDS ON THE PDP-10

Before you can transfer files between your PDP-11 and the PDP-10, you need to log in to the PDP-10, and give it a Network Access Password. This is the password that will be looked at when any RSX user tries to access the PDP-10. The program to put in this password is called NETMAN.

The Network management system provides security for file transfers and accounting for the use of external networks via the gateway. In order that a user on a non-DEC10 system may access the file store of a user on the DEC10 system the non-DEC10 user must know the file transfer password of the user on the DEC10 system. The NETMAN program allows the DEC10 user to create or change his password with the INSERT or CHANGE commands. In addition the CHANGE command allows the user to change his gateway password (if relevant). The NETMAN program is started by the command -

R NETMAN

and it invites the user to enter a command by the prompt -

[NMN]>

and the user may type the commands -

1. INSERT to create a new file transfer password.
2. CHANGE to change a file transfer password, or gateway password if relevant.
3. TYPE to display the users gateway account record.
4. HELP to type this text.
5. EXIT to leave the program.

The commands INSERT and CHANGE prompt the user for the relevant arguments.

(This text is also available by giving the TOPS-10 command ".HELP NETMAN".)

Mark Williams
extension 2962

5.0 MAKING YOUR RSX-11 TERMINAL BECOME A TERMINAL ON THE PDP-10

VTY -- Virtual Terminal software allows a user on any terminal connected to a RSX-11M system to communicate with node UQKL10 as a remote user. Connection is established by typing

>VTY<cr>

on the user's terminal. If network operations are enabled, the user will become connected to the KL-10 and INITIA will be run. When LOGIN is run, a random character mask is typed so that when the user types his password (which is echoed by the local system) it cannot be read.

To return the terminal to the RSX-11M system, the user should type the control character <gs> (<control-]> on most terminals). If the user has not logged out prior to terminating his connection, his job on the KL-10 will be DETACHED!

Since transmissions are done on a record basis, a single character transmission mode is provided for applications which require terminal input that does not require standard break characters for their operation. The control character <rs> (<control-^> on most terminals) enables and disables single character transmission mode. Normal record break characters include <control-C>, <esc>, <bel>, <cr>, <lf>, <vt>, <ff>, <xon>, <xoff> and <control-Z>. Rubout is done locally and <control-H> is not implemented.

(This text is also available by issuing the TOPS-10 command ".HELP VTY".)

Mark Williams
extension 2962

6.0 THE TEKTRONIX PLOTTING LIBRARY (TCS) SHIFTS HOUSE ON THE VAX

Observant VMS users might possibly have noticed that the TEKTRONIX library, TCS isn't where it once lived. You now need to give a new specification to get it linked with your file.

The new command to link your file with TCS is -

```
$LINK program,SYS$LIBRARY:TCS/L
```

This change occurred because of VMS 3.0. In reality, TCS stayed in the same place, only it's address changed.

If you're anything like myself, you'd want to type in something shorter than SYS\$LIBRARY:TCS every time you link a program. My solution is - define a logical name called TCS, and use that instead, i.e.

```
$DEFINE TCS SYS$LIBRARY:TCS
```

will now allow you to type in

```
$LINK program,TCS/L
```

Isn't that better? I put the DEFINE command into my LOGIN.COM file, so that the TCS is defined for me each time I log in to VMS.

Recent additions to the TCS library on the VAX are the routines SCHAR, LCHAR and SLETS. These allow you to draw variable size and slope characters. These are fully documented in the PLOT-10 CHARACTER GENERATION MANUAL.

The Character Generation capability of TCS extends to allowing you to define your own characters. Look in the mentioned manual, or phone me if you're interested.

Here's an example of characters generated by routine LCHAR.

789 246.8
123.456

Well, Brett . . .

How is THIS?

06-37DNV ANGLE=45
54-37DNV ANGLE=0
516-37DNV ANGLE=315
022-37DNV ANGLE=225
08T-37DNV ANGLE=180

Hi Kids!...and I'm back!

h~

NOPOBSTUWXYZ

ABCDEFGHIJKLM

:<=>?@[\]^_`~

./0123456789,

!\"#\$%&'()*+,-

noqrstuvwxy

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

Mark Williams
extension 2962

7.0 GIGI TERMINALS - MEMORY EXPANSION

Do you find the 8K bytes of user memory available to BASIC on your Gigi a bit small? Then you can't afford to miss this special from the Centre!

Increase the RAM in your Gigi to 24K bytes for only \$150. Ring Maralyn on extension 3938 now to book in your Gigi (we need to buy in the parts). We would appreciate your delivering Gigi's to the Centre when advised, together with appropriate authorisation and account number for the expenditure.

Graham Rees
extension 3288

8.0 NEW VERSION OF SOFTWARE HOUSE 1022 DATA BASE MANAGEMENT SYSTEM

Version 115B of 1022, a data base management system, has arrived and is currently available on NEW:. Version 115A, previously on NEW: is now available on OLD:. A summary of the major new features are below. Detailed descriptions of the new features may be obtained by printing the file 115B.MEM on DOC:.

1. Twenty-two string functions are provided for manipulating TEXT values from attributes and variables. They combine strings, return the length of a string, return substrings, strip and count spaces, centre strings, change case and search, insert and replace strings and work in interactive 1022 wherever functions are allowed. A detailed list of string functions is available in the file 115B.MEM on DOC:.
2. The new system variable SYSEURODAT controls whether 1022 uses the month/day ("U.S." style) or the day/month (European style) date formats. When SYSEURODAT is set or defaulted to 0, it looks for U.S. style date formats on input. If set or defaulted to 1, it looks for European style format.
3. The system variable SYSTRAPUP3 allows the user to choose how to handle the UP3 update error, either as a warning or as an error.

Documentation

Documentation for 1022 is available as follows:

1. User's reference manual, Revision 1, October 1980. A revised manual will be available with the release of V116 of 1022. This manual contains complete information about the use of 1022. To access this manual, print DOC:MANUAL.MEM (Warning: this is a large file).
2. Host Language Interface User's Reference Manual, Revision 2, October 1981. This contains information needed to write and run FORTRAN, COBOL and MACRO application programs using the SYSTEM 1022 subroutine library. This file is available on DOC:HOST.MEM.
3. Report Writer Manual. This contains a collection of reports and detailed descriptions of each to illustrate how custom reports are written. It supplements the Reports Chapter in the User's Reference Manual. It is available on DOC:REPMAN.MEM.
4. System 1022 Reference Book. This is a pocket guide to using 1022. It can be purchased at the Hawken Batch Station for \$48.50.
5. 115B.MEM. New features and improvements in version 115B. It includes documentation changes that have not been made in the User's and Host manuals. It is available on DOC:115B.MEM.
6. 1022.BWR. Warnings of version incompatibilities and use problems for the current release. It is available on DOC:1022.BWR.
7. 1022 Primer. This manual is ideal for novice 1022 users. It may be purchased from the Hawken Batch Station for \$32.95.

This version will supersede the current version on SYS: (Version 114D) on the 4th July and users are advised to test their programs with the version of NEW: before it is transferred to SYS:

Lee MacDonald
extension 3943

9.0 NAG - DESCRIPTION OF OUTSTANDING ERRORS

The following errors apply to the NAG libraries on the KL and VAX.

ROUTINES IN ERROR	PRIMARY ROUTINES AFFECTED	DESCRIPTION
C05AVF	C05AVF	Does not always behave sensibly if on entry H is too large; occasionally, this can lead to run-time errors, such as overflow.
D01FCF	D01FCF	Division by 0 occurs if at any stage the current estimate of the integral is exactly 0.
D02GBF*	D02GBF	Many perform incorrectly if on entry $N > 3$ and the arrays C,D and GAM (which determine the boundary conditions) are not already sorted into the desired order specified in the routine document. There is an error in the code to re-order these arrays and as a result may sometimes return incorrect results or fail with IFAIL=3.
D02RAS D02RAV D02RAY	D02GAF D02GBF D02RAF	Division by zero may occur in D02RAS after a singular Jacobian has been encountered.
F02AOF*	F02AOF	Returns incorrect eigenvectors if called with $K > 1$ or $L < N$ (which may sometimes happen as a result of a preceding call to F01ATF).
G08BAF*	G08BAF	Returns an incorrect value for PV if called with $N.NE.2*N1$ (i.e. samples of unequal size).
M01AAF	M01AAF	Returns an incorrect value in the array IP if called with $M=N>1$; IP(M) was set to M instead of 1.
M01ABF	M01ABF	Returns an incorrect value in the array IP if called with $M=N>1$; IP(M) was set to M instead of 1.
M01ACF	M01ACF	Returns an incorrect value in the array IP if called with $M=N>1$; IP(M) was set to M instead of 1.
M01ADF	M01ADF	Returns an incorrect value in the array IP if called with $M=N>1$; IP(M) was set to M instead of 1.
E04GEF	E04GEF	May occasionally return IFAIL=3 when a minimum has been successfully located because the accuracy requirements are too stringent.
E04GCF	E04GCF	May occasionally return IFAIL=3 when a minimum has been successfully located because the

accuracy requirements are too stringent.

E04HFF	E04HFF	May occasionally return IFAIL=3 when a minimum has been successfully located because the accuracy requirements are too stringent.
D02KDY D02SAU D02SAV D02SAW D02SAX	D02HAF	May in certain circumstances converge very slowly or even needlessly fail to converge, in particular if the initial estimates of the boundary values are an acceptable solution, the routine reports failure to converge (IFAIL=8).
D02SAZ	D02HBF	May in certain circumstances converge very slowly or even needlessly fail to converge; in particular if the initial estimates of the parameters are an acceptable solution, the routine reports failure to converge.
	D02SAF	May in certain circumstances converge very slowly or even needlessly fail to converge; in particular if the initial estimates of the parameters are an acceptable solution, the routine reports failure to converge (IFAIL=14).

* BEWARE. These errors may cause incorrect numerical results to be returned without warning.

Lee MacDonald
extension 3943

10.0 INFORMATION CONCERNING COURSES

The schedule of courses for Semester 1 is printed below.

May:

Introduction to PDP-10	: May 3-6 4 half days 1-4pm each day
RUNOFF	: May 9-12 4 half days 9am-1pm each day
Elementary FORTRAN Programming	: May 16-20 5 full days 9-12am + 1-4pm each day
1022	: May 23-26 4 half days 9am-1pm each day

Introduction to PDP10 : May 30 - June 2
4 half days 9-12am each day

June:

Introduction to PDP-10 : June 6-7
2 full days 9-12am + 1-4pm each day

Elementary BASIC Programming : June 8-10
3 full days 9-12am + 1-4pm each day

SPSS : June 14-16
3 full days 9-12am + 1-4pm each day

RUNOFF : June 20-24
5 half days 9-12am each day

1022 : June 20-24
5 half days 1-4pm each day

Introduction to PDP-10 : June 27-28
2 full days 9-12am + 1-4pm each day

Elementary TECO Editing : June 29
1 full day 9-12am + 1-4pm each day

Typesetting : June 30 - July 1
2 full days 9-12am + 1-4pm each day

July:

Elementary FORTRAN Programming : July 4-8
5 full days 9-12am + 1-4pm each day

Plotting and Graphics : July 12-14
3 half days 9-12am each day

Notes:

1. Users without basic knowledge and experience of the DEC-10 system, together with some facility in the use of an editor, MUST attend the course "Introduction to PDP-10" before enrolling in any other course.
2. A brief description of the content of each course was provided in Newsletter N-279.
3. All of the above courses will be held in Room G13A - Hawken Building.

4. Enrolments for all courses may be made by phoning extension 3018.

Barry Maher
extension 3021

11.0 DEPARTMENTAL EQUIPMENT FOR SALE

Canon, "Canola SX300" programmable calculator (worth \$3200 some 8 years ago) + memory extension (\$780) available from the Department of Architecture. No reasonable offer refused. Contact Mr Yamaguchi (ext. 2859) or Dr Szokolay (ext. 3878).

One DIABLO 1620 daisy-wheel terminal with forms tractor, 1977 model. \$1000 o.n.o. available from the Tertiary Education Institute (TEI). Contact Geoff Foster (ext. 3085).

Maralyn Kenley
extension 3938

